TRUMPET REFERENCE

Vacuum Tube Phonostage



Made in USA.

Copyrights & Trademarks

Disclaimer

The information contained in this document is subject to change without notice. Hagerman Audio Labs shall not be liable for errors contained herein or for consequential damages in connection with the furnishing, performance, or use of this material.

Warranty

Hagerman Audio Labs warrants this product free of defects in materials and workmanship for a period of 10 years (90 days on tubes). If you discover a defect, Hagerman Audio Labs will, at its option, repair or replace the product at no charge to you provided you return it during the warranty period, transportation charges prepaid to Hagerman Audio Labs. This warranty does not apply if the product has been damaged by negligence, accident, abuse or misuse or misapplication, has been damaged because it has been improperly connected to other equipment or has been modified without the express written permission of Hagerman Audio Labs. This warranty is limited to the replacement or repair of this product and not to damage to equipment of other manufacturers. Any applicable implied warranties, including warranty of merchantability, are limited in duration to a period of the express warranty as provided herein beginning with the original date of purchase and no warranties, whether express or implied shall apply to the product thereafter. Under no circumstances shall Hagerman Audio Labs be liable for any loss, direct, indirect, incidental, special, or consequential damage arising out of or in connection with the use of this product.

Hagerman Audio Labs
PO Box 61911
Honolulu, HI 96839
808-383-2704
www.haglabs.com

Description

The Trumpet Reference is a true reference-class phonostage for the most demanding of audiophiles. Based on the original Trumpet (Stereophile class-A recommended component), it adds pushbutton control of all functions, a second input, and upgrades for many of the components. The chassis has also been changed to reflect the reality of equipment racks by putting the power supply and amplifier boards in a side-by-side configuration. Status LEDs on the front panel indicate operational settings of the various functions. In addition to standard RIAA equalization, three other curves used in the LP "microgroove" era have been included. This combination of features, convenience, and sonic performance are unmatched at this price.

Specifications

Item	Specification
Gain	44dB (MM) / 64dB, 70dB (MC)
Input Impedance	47k (MM) / 1k, 322, 181, 131, 91, 76, 64, 57 (MC)
Output Impedance	800 ohm
RIAA Response	+/-0.5dB from 20Hz to 20kHz
Bandwidth	8Hz to 500kHz
Distortion	<0.05% @1kHz
Noise	70dBA (MC)
Size	17” x 12” x 5”
Weight	19 lbs.
Power	120Vac / 240Vac, 70W
Tube Compliment	12AX7 x 4, 12AU7 x 4

Operation

The Trumpet Reference installs between your turntable and linestage. Be sure to connect the ground lead to the grounding lug near the inputs. Connect the power cord to an AC source. Turn on using the power switch on the back panel. Press the *POWER* button on the front. Immediately the heaters will turn on and after a 32 second delay the high voltage supplies will activate.

Controls

Control	Description
POWER	This button toggles power on and off. The left LED indicates heater voltage for the tubes; the right LED indicates high voltage.
EQ	There are four settings defined by turnover and cut, arranged left to right: 400Hz / 11dB (AES, early ffrr) 500Hz / 11dB (Decca, EMI, late ffrr) 500Hz / 13.7dB (RIAA) 500Hz / 16dB (Columbia, NAB)
STEREO	Left LED is mono.
INPUT	Left LED is MM.
POLARITY	Left LED is inverted (MC).
GAIN	There are two gain settings (MC): 64dB (>0.25mV cart) 70dB (<0.25mV cart)
LOADING	There are eight loading settings (MC), arranged left to right: 1k 322 181 131 91 76 64 57

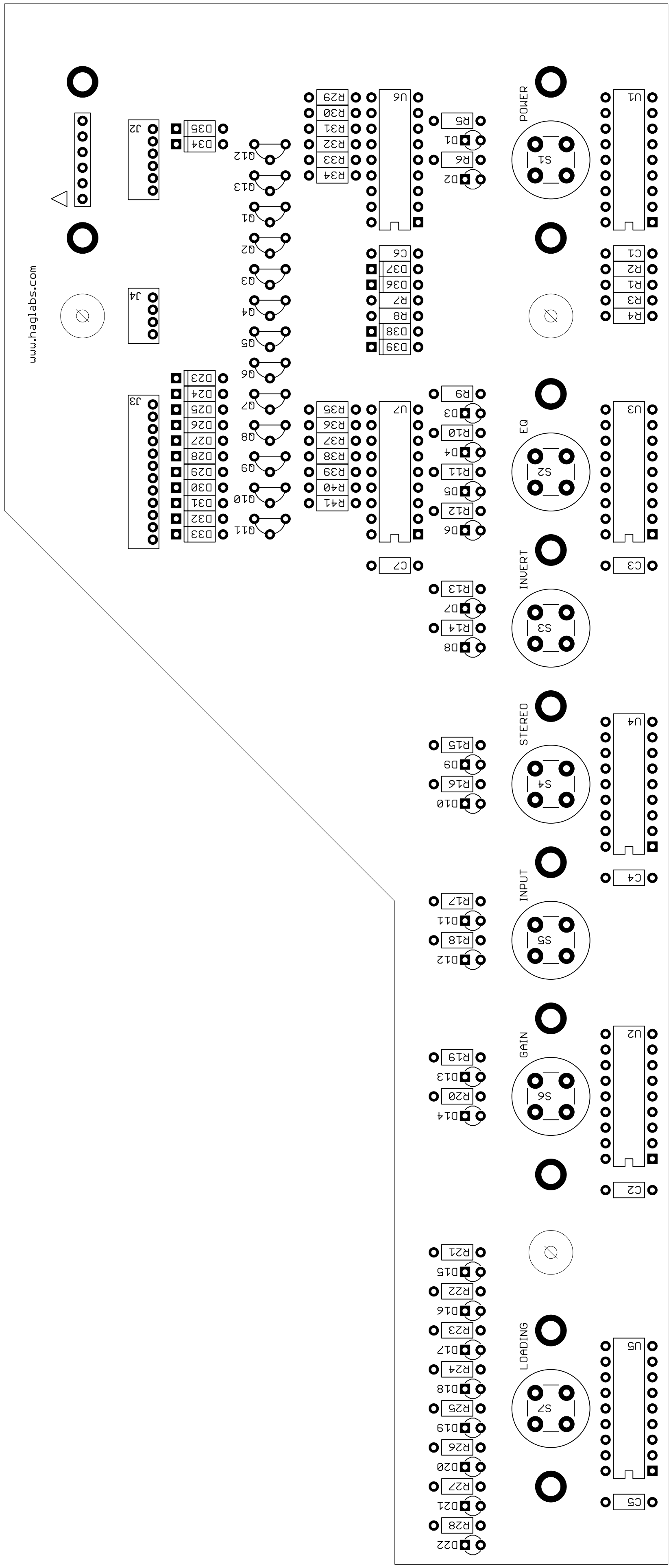
Commentary

The Trumpet Reference responds admirably to tube rolling. New old stock (NOS) tubes are generally the best, offering various sonic improvements, with the final result becoming a matter of personal taste. Try to match in left/right pairs, to maintain equalization frequency balance. Always replace tubes with their equivalents! Do not use, for example, a 12AT7 in one of the 12AX7 locations. Starting from the rear of the unit, the tubes are in order: 12AX7, 12AX7, 12AU7, 12AU7.

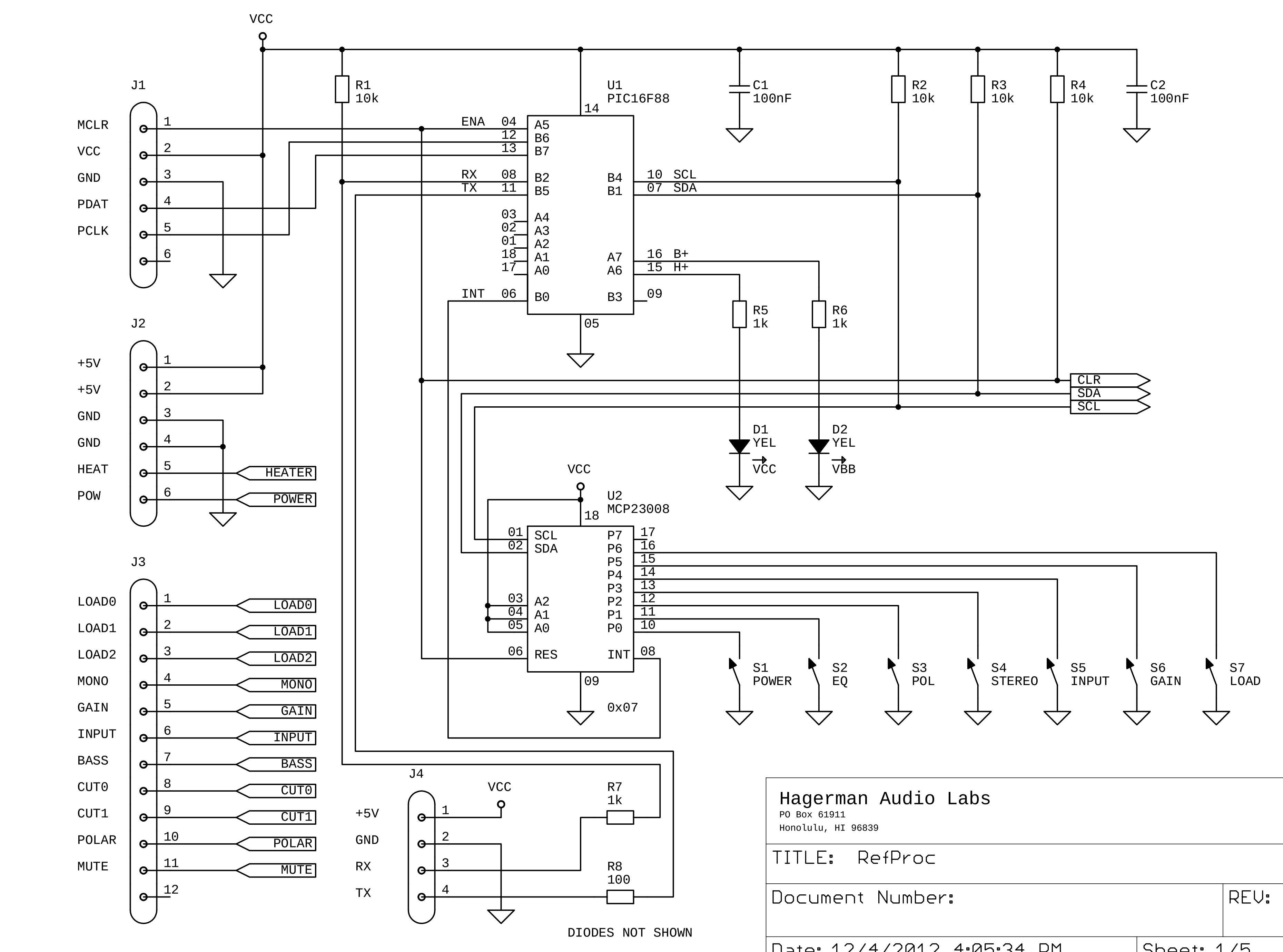
Cartridge loading depends on the length and type of interconnects used and it is always good to start with a value close to the manufacturer's recommendation. Generally, loading provided by the Trumpet Reference is effectively *lower* than the equivalent from a transformer. That is, if you like the sound from 100 ohm transformer loading (into the MM input), then try the 131 ohm setting on the MC input. In the end, do *not* worry about numbers. Adjust to what your ears prefer.

As far as gain selection, it is better to go with *lower* gain if possible. This optimizes overall headroom and distortion of the audio system.

The EQ settings provide various curves for achieving better sound from your vinyl playback. The 3rd LED from the left is RIAA (modern) as will be used most often. The Decca and Columbia curves help with some older microgroove LPs. Again, this is adjusted for personal preference, and was never an exact science. Nevertheless, this can make a significant improvement for certain instruments such as violin and on vocals.



POWER
EQ
INVERT
STEREO
INPUT
GAIN
LOADING
www.haglabs.com



Hagerman Audio Labs
PO Box 61911
Honolulu, HI 96839

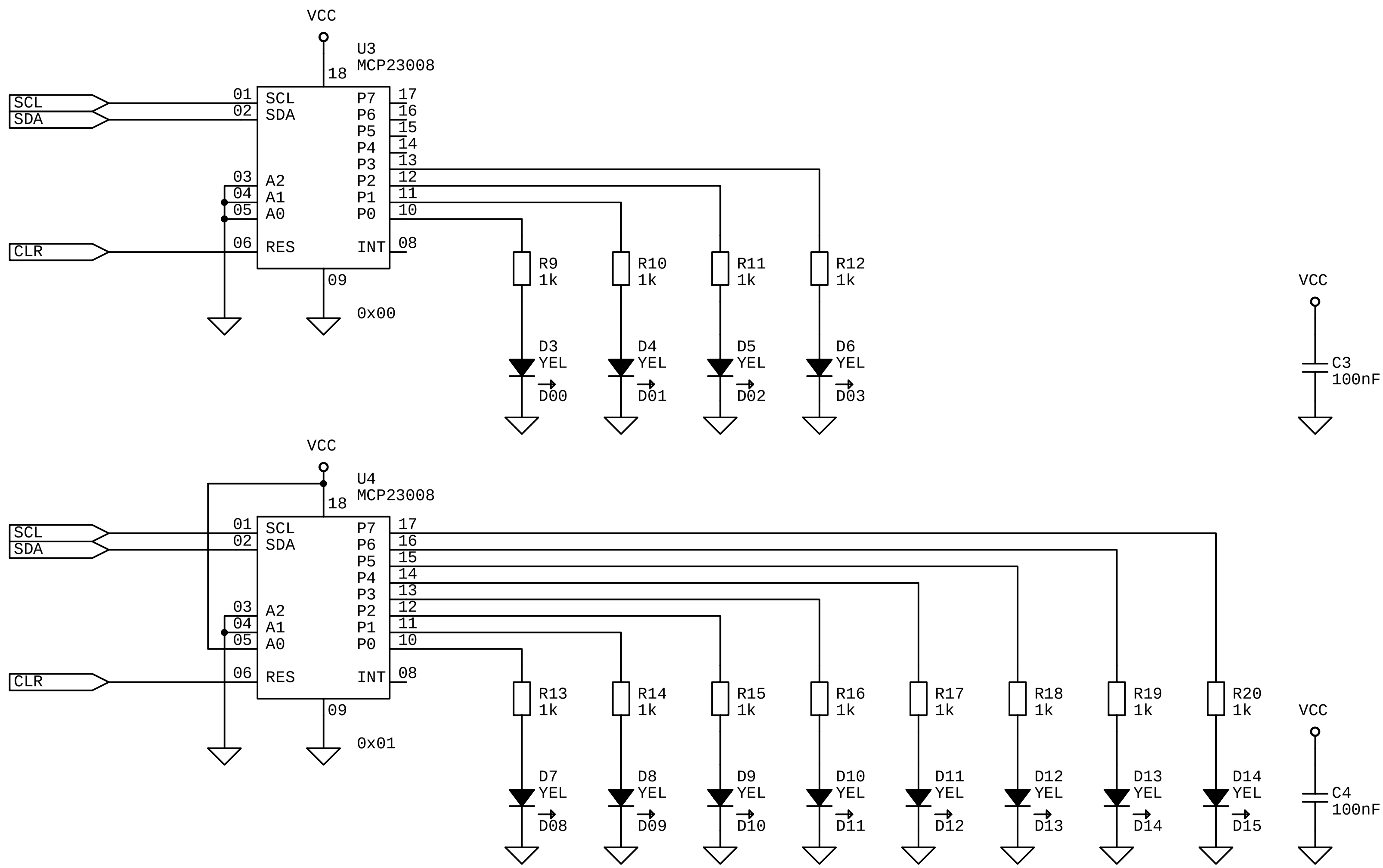
TITLE: RefProc

Document Number:

REV:

Date: 12/4/2012 4:05:34 PM

Sheet: 1/5



Hagerman Audio Labs
PO Box 61911
Honolulu, HI 96839

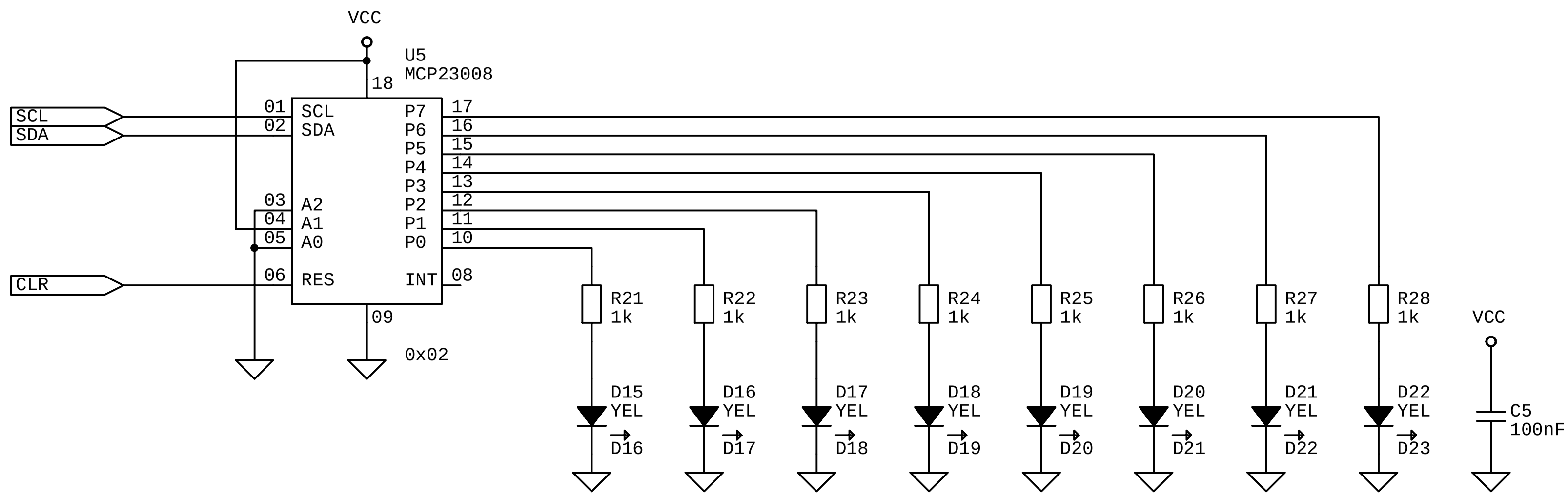
TITLE: RefProc

Document Number:

REV:

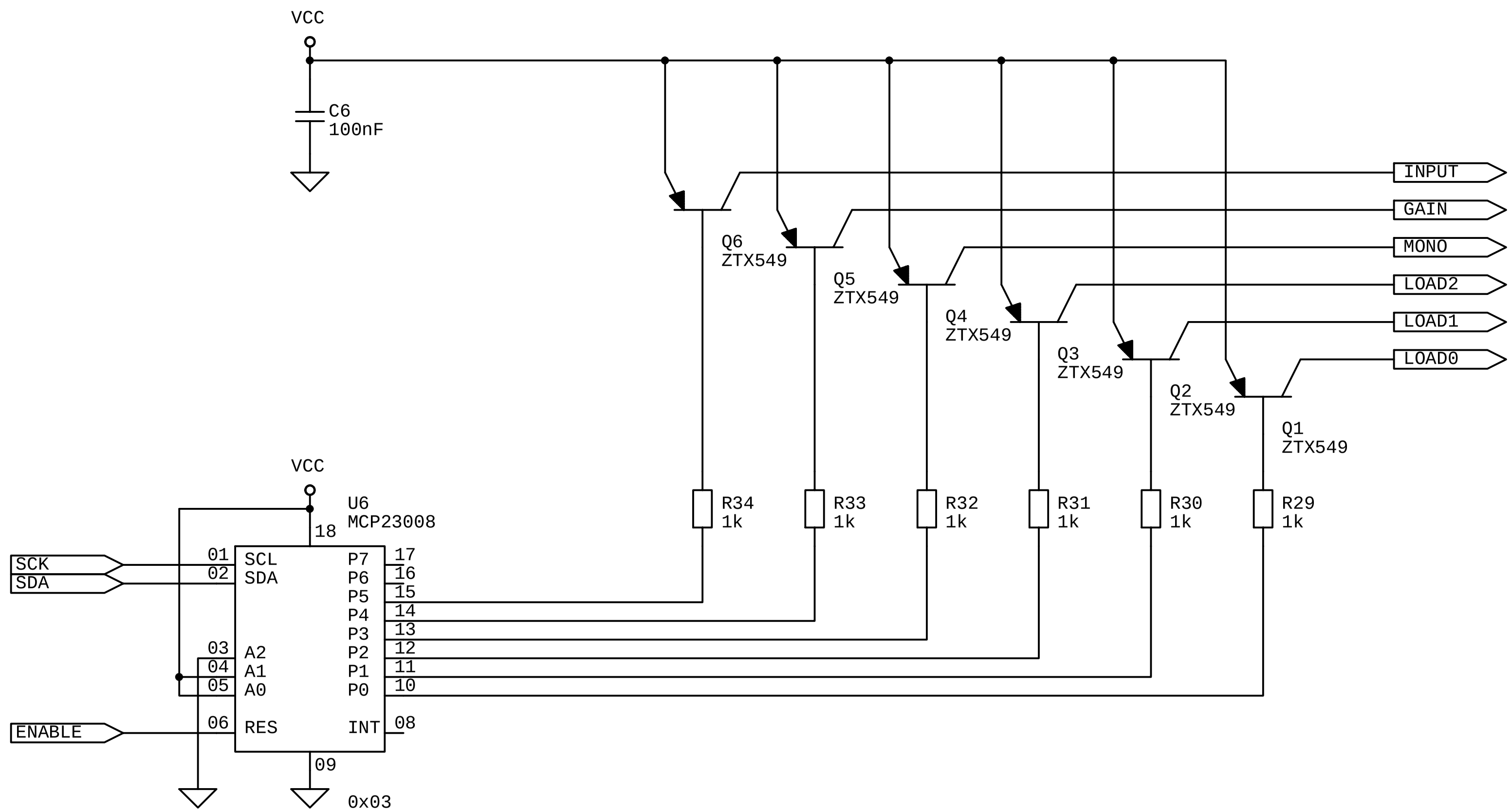
Date: 12/4/2012 4:05:34 PM

Sheet: 2/5



Hagerman Audio Labs
PO Box 61911
Honolulu, HI 96839

TITLE: RefProc	
Document Number:	REV:
Date: 12/4/2012 4:05:34 PM	Sheet: 3/5



Hagerman Audio Labs
PO Box 61911
Honolulu, HI 96839

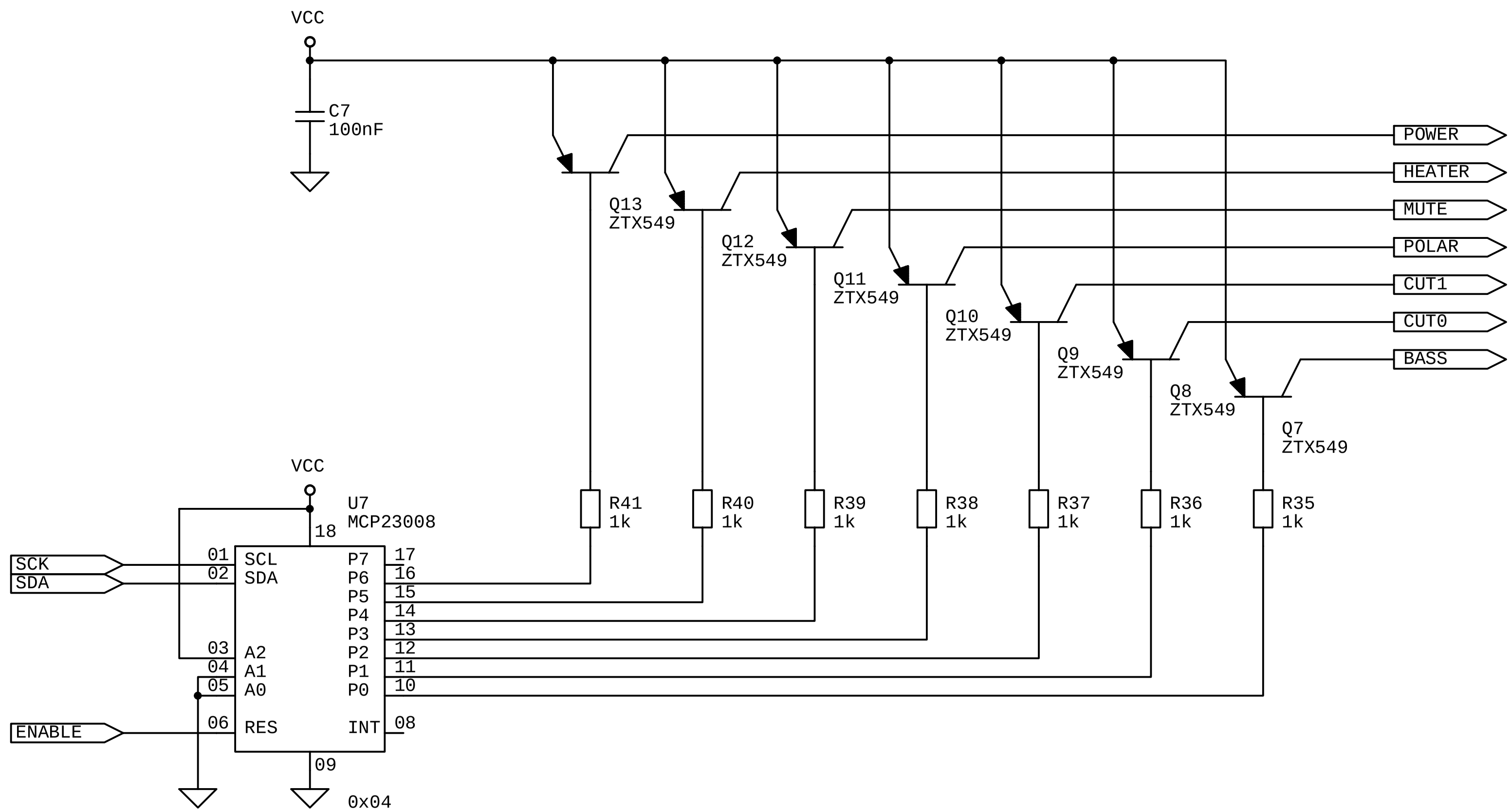
TITLE: RefProc

Document Number:

REV:

Date: 12/4/2012 4:05:34 PM

Sheet: 4/5



Hagerman Audio Labs
PO Box 61911
Honolulu, HI 96839

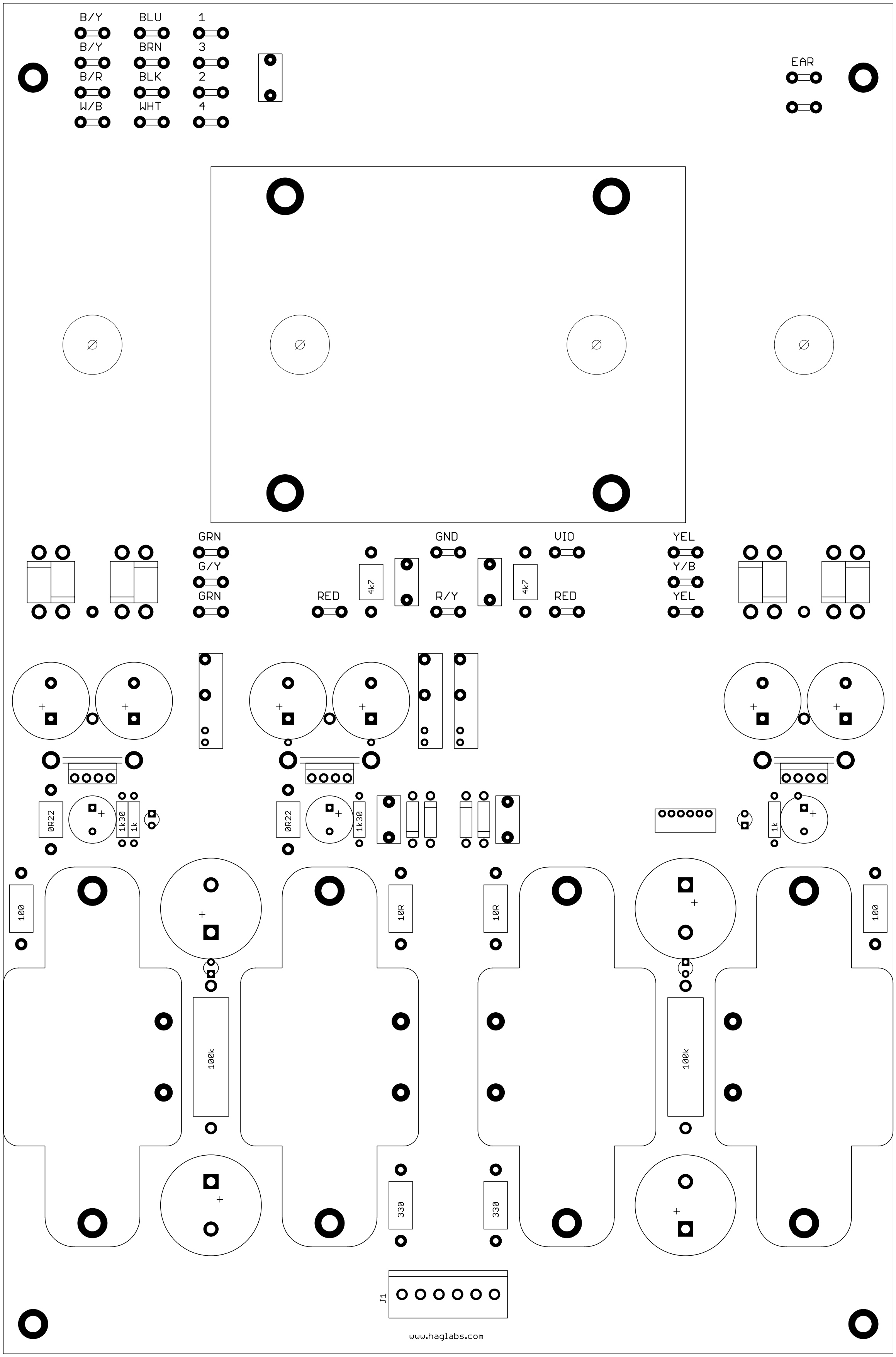
TITLE: RefProc

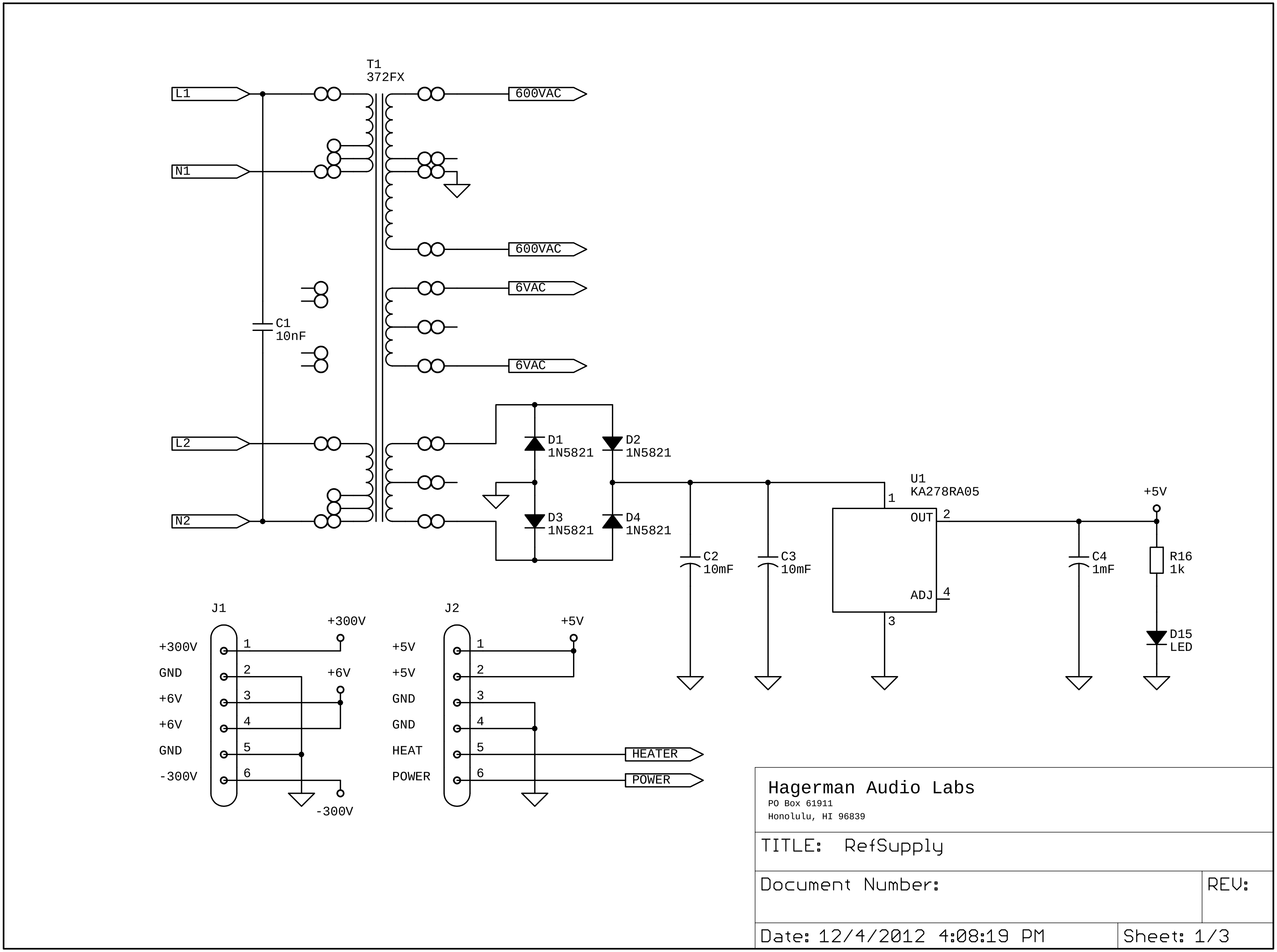
Document Number:

REV:

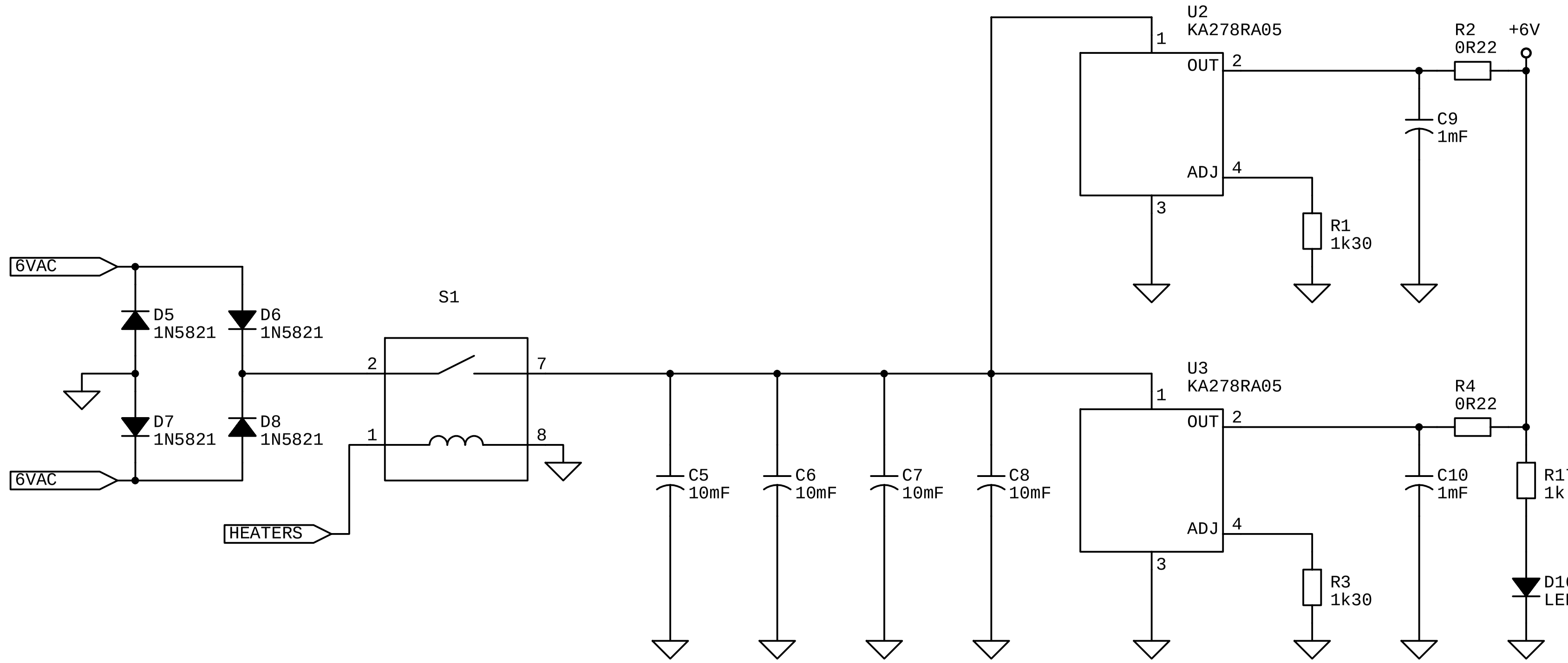
Date: 12/4/2012 4:05:34 PM

Sheet: 5/5

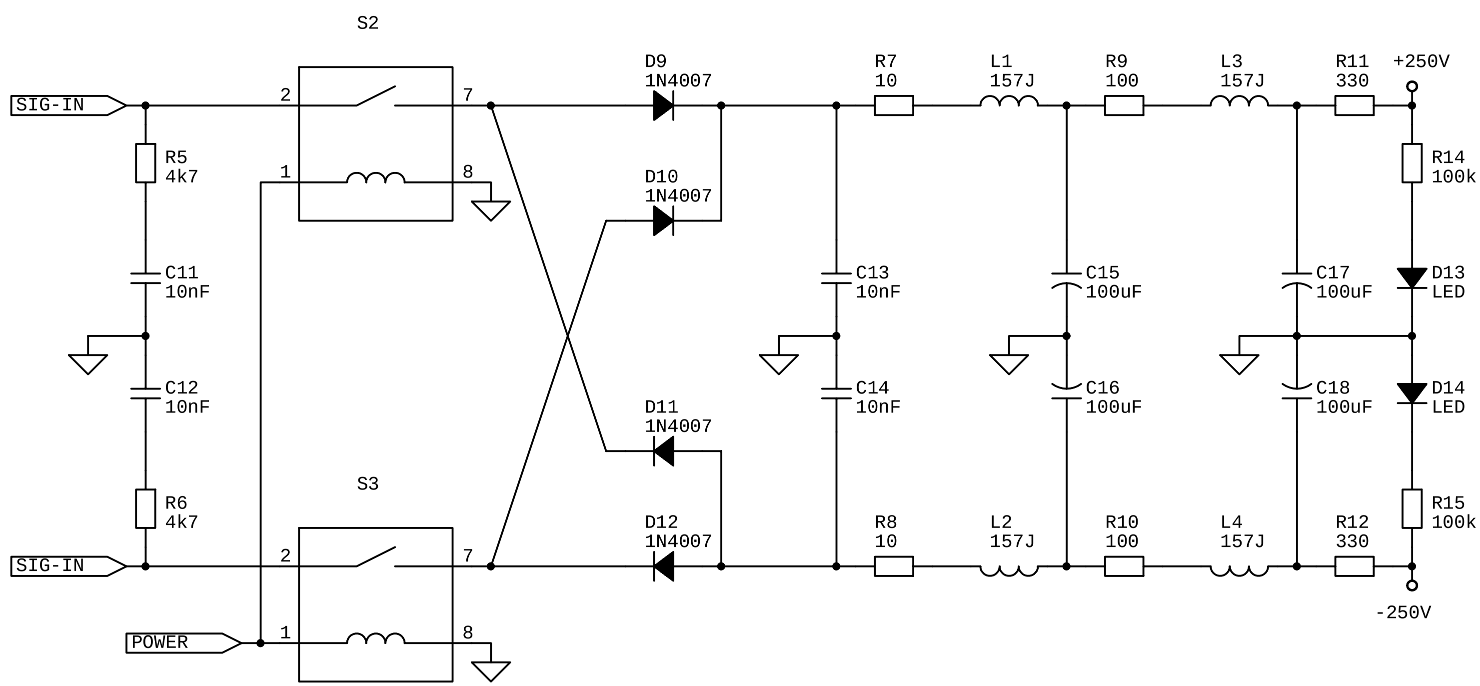

B/Y
BLU
1
B/Y
BRN
3
B/R
BLK
2
W/B
WHT
4
EAR
GRN
G/Y
GRN
GND
VIO
YEL
Y/B
YEL
RED
R/Y
RED
4k7
4k7
0R22
1k30
1k
0R22
1k30
1k
100
10R
10R
100
100k
100k
330
330
J1
www.haglabs.com



T1
372FX
L1
N1
L2
N2
C1
10nF
600VAC
600VAC
6VAC
6VAC
D1
1N5821
D2
1N5821
D3
1N5821
D4
1N5821
C2
10mF
C3
10mF
U1
KA278RA05
OUT
ADJ
1
2
3
4
+5V
C4
1mF
R16
1k
D15
LED
J1
+300V
GND
+6V
+6V
GND
-300V
1
2
3
4
5
6
+300V
+6V
-300V
J2
+5V
+5V
GND
GND
HEAT
POWER
1
2
3
4
5
6
+5V
HEATER
POWER
Hagerman Audio Labs
PO Box 61911
Honolulu, HI 96839
TITLE: RefSupply
Document Number:
REV:
Date: 12/4/2012 4:08:19 PM
Sheet: 1/3



Hagerman Audio Labs PO Box 61911 Honolulu, HI 96839	
TITLE: RefSupply	
Document Number:	REV:
Date: 12/4/2012 4:08:19 PM	Sheet: 2/3



Hagerman Audio Labs
PO Box 61911
Honolulu, HI 96839

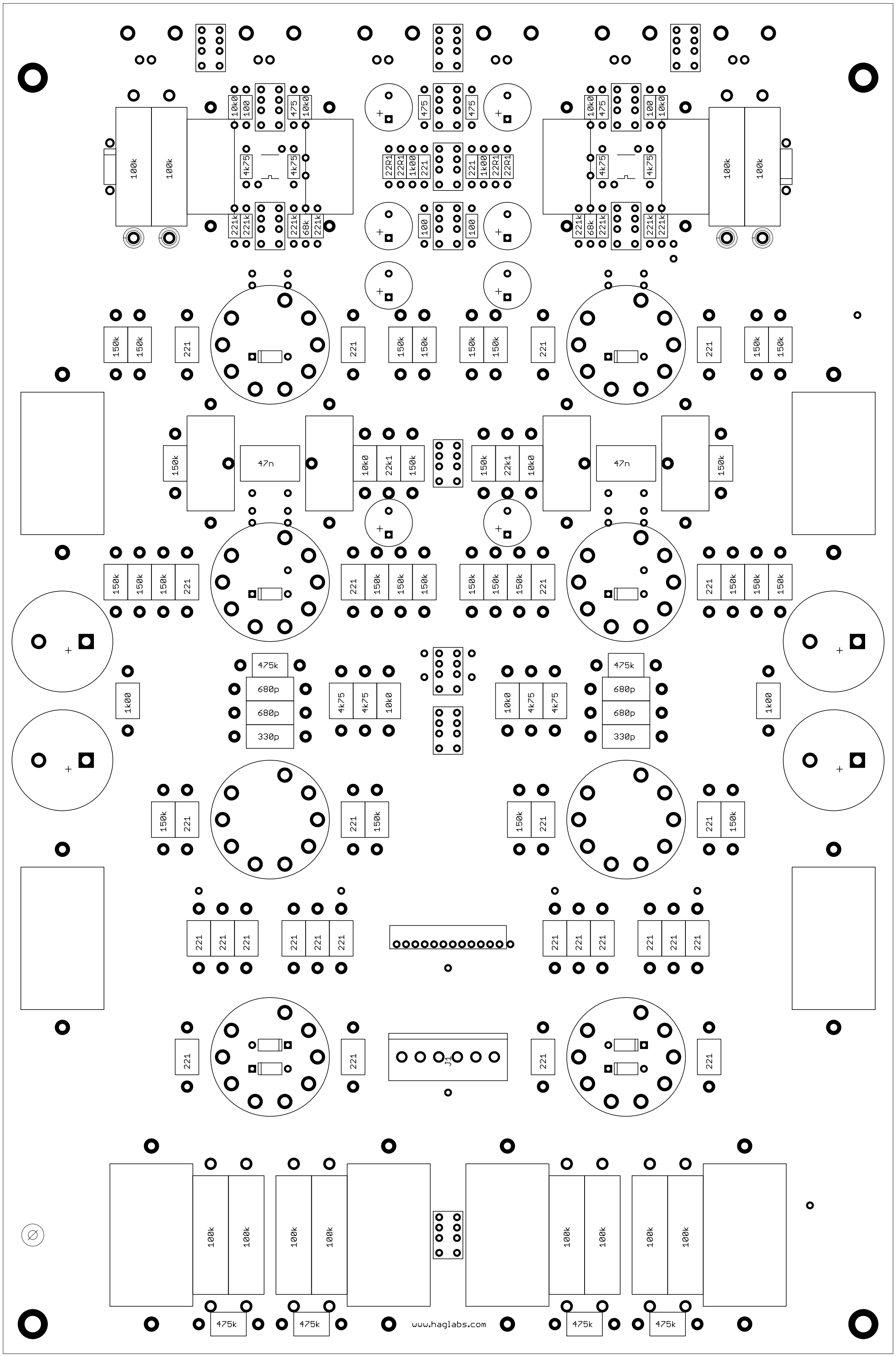
TITLE: RefSupply

Document Number:

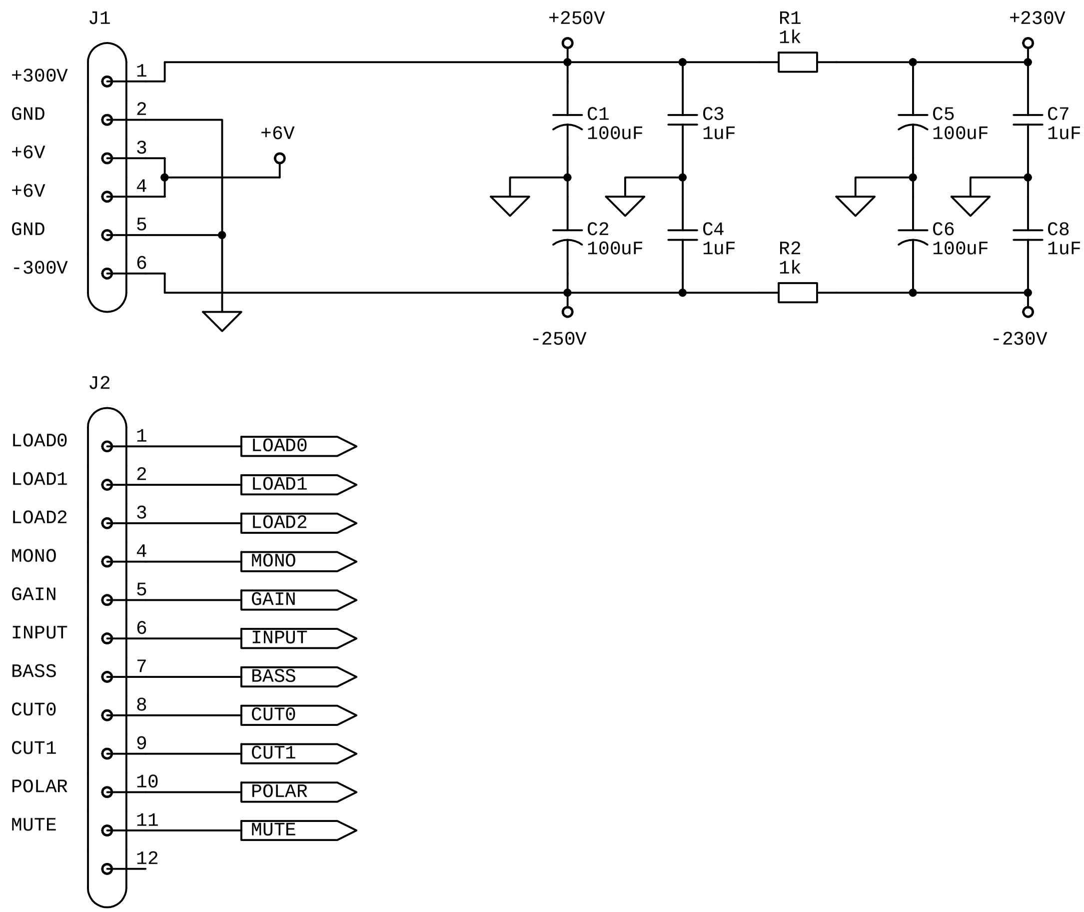
REV:

Date: 12/4/2012 4:08:19 PM

Sheet: 3/3

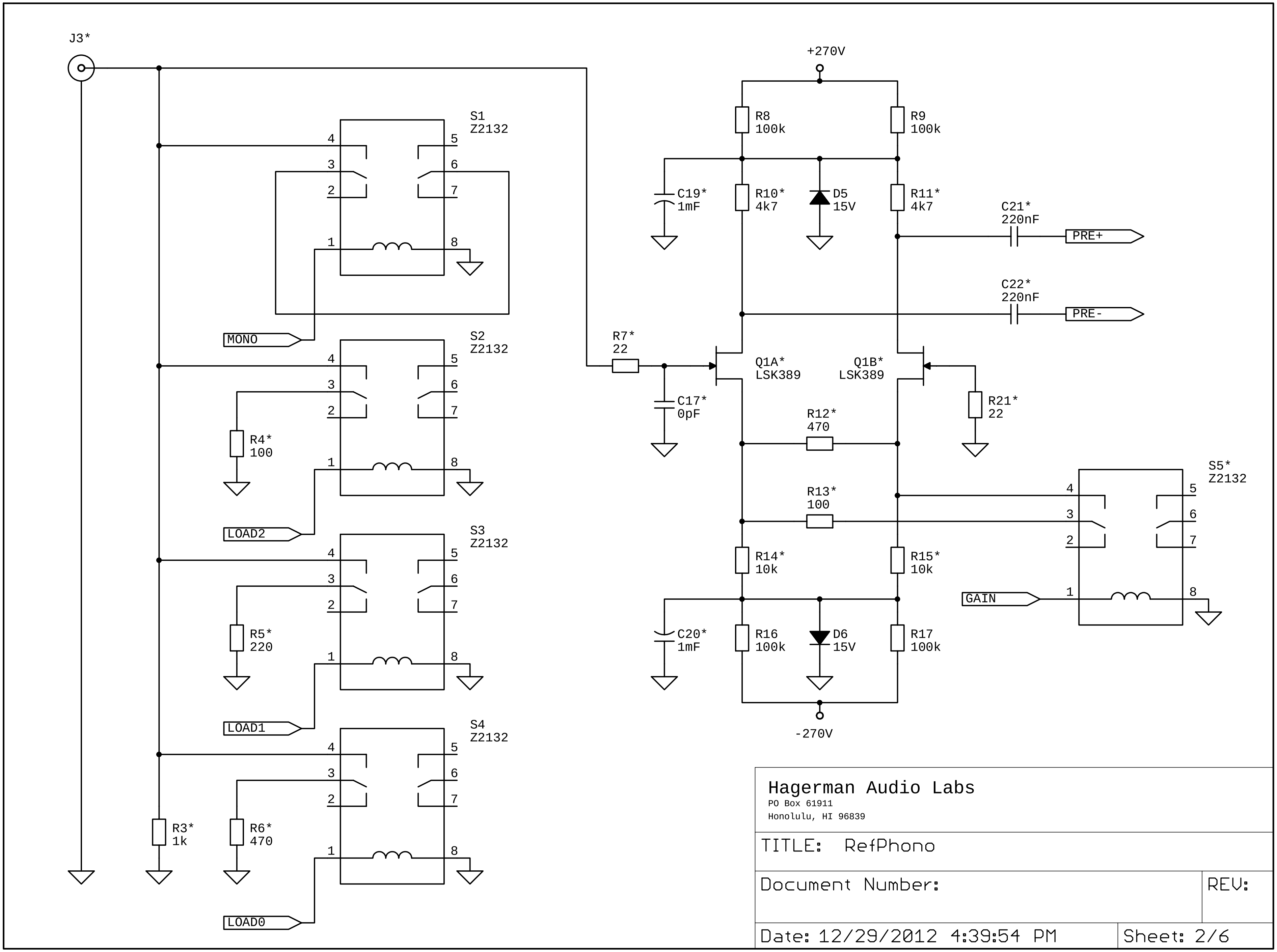


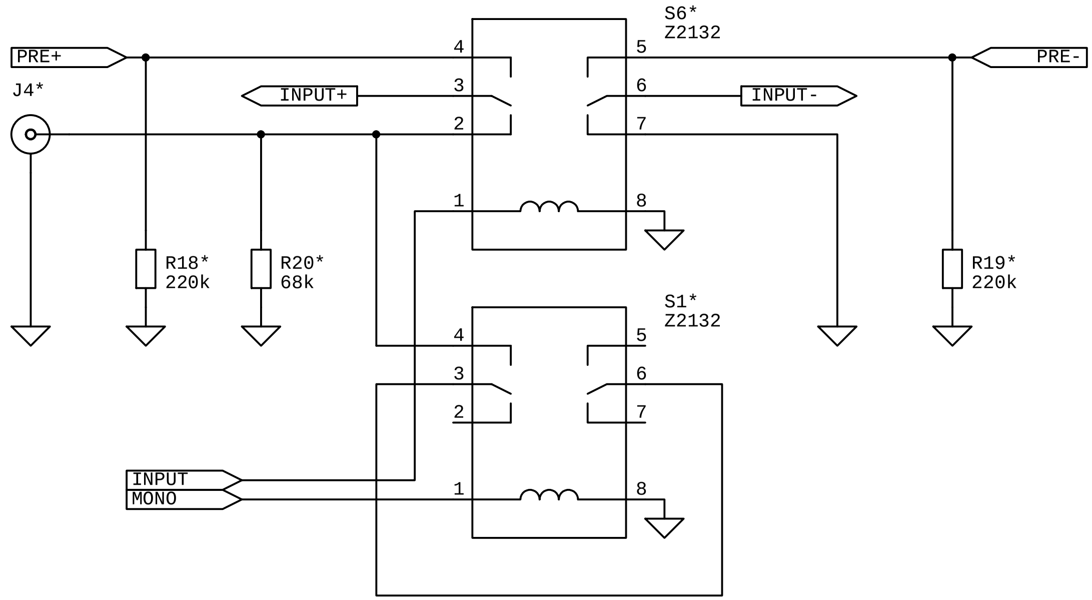
J1
www.haglabs.com



Hagerman Audio Labs
PO Box 61911
Honolulu, HI 96839

TITLE: RefPhono	
Document Number:	REV:
Date: 12/29/2012 4:39:54 PM	Sheet: 1/6


J3*
S1
Z2132
MONO
S2
Z2132
R4*
100
LOAD2
S3
Z2132
R5*
220
LOAD1
S4
Z2132
R3*
1k
R6*
470
LOAD0
+270V
R8
100k
R9
100k
C19*
1mF
R10*
4k7
D5
15V
R11*
4k7
C21*
220nF
PRE+
C22*
220nF
PRE-
R7*
22
Q1A*
LSK389
Q1B*
LSK389
C17*
0pF
R21*
22
R12*
470
R13*
100
S5*
Z2132
R14*
10k
R15*
10k
GAIN
C20*
1mF
R16
100k
D6
15V
R17
100k
-270V
Hagerman Audio Labs
PO Box 61911
Honolulu, HI 96839
TITLE: RefPhono
Document Number:
REV:
Date: 12/29/2012 4:39:54 PM
Sheet: 2/6



Hagerman Audio Labs
PO Box 61911
Honolulu, HI 96839

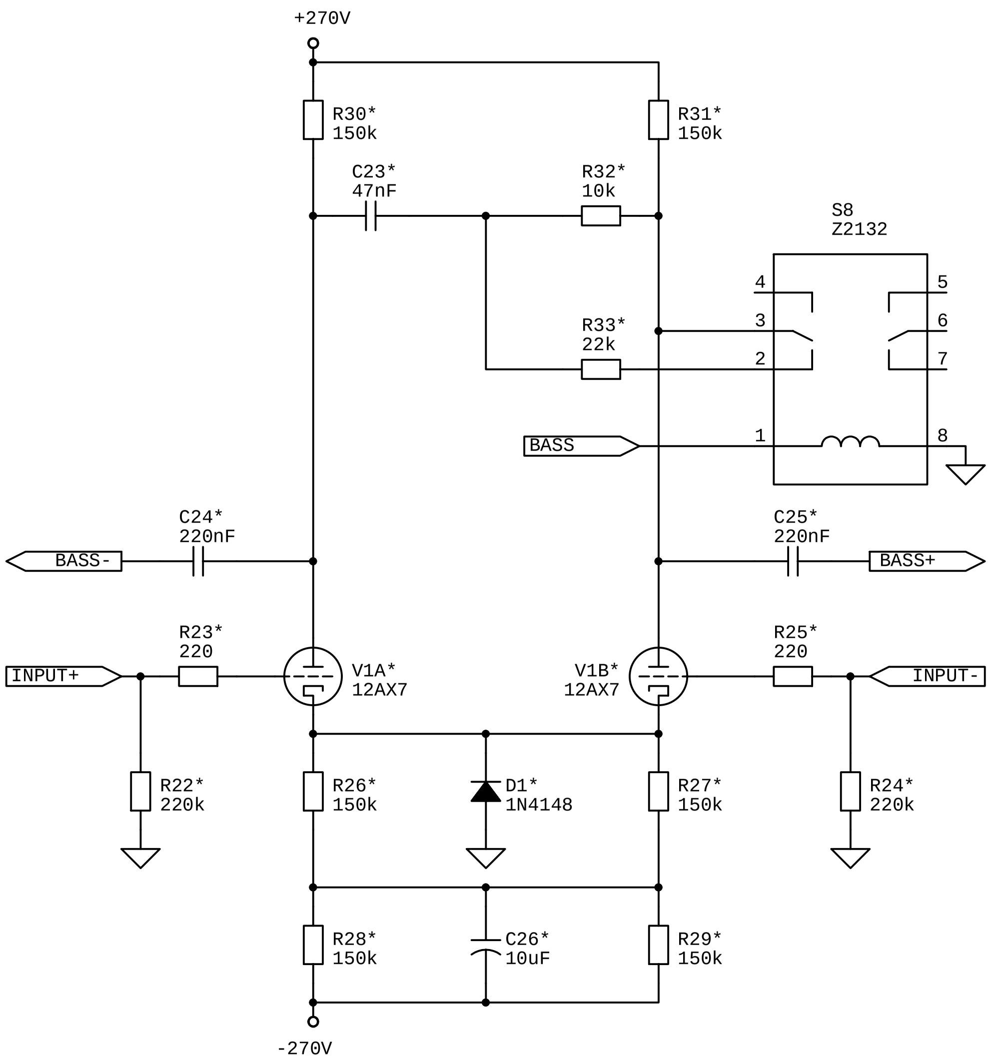
TITLE: RefPhono

Document Number:

REV:

Date: 12/29/2012 4:39:54 PM

Sheet: 3/6



Hagerman Audio Labs
PO Box 61911
Honolulu, HI 96839

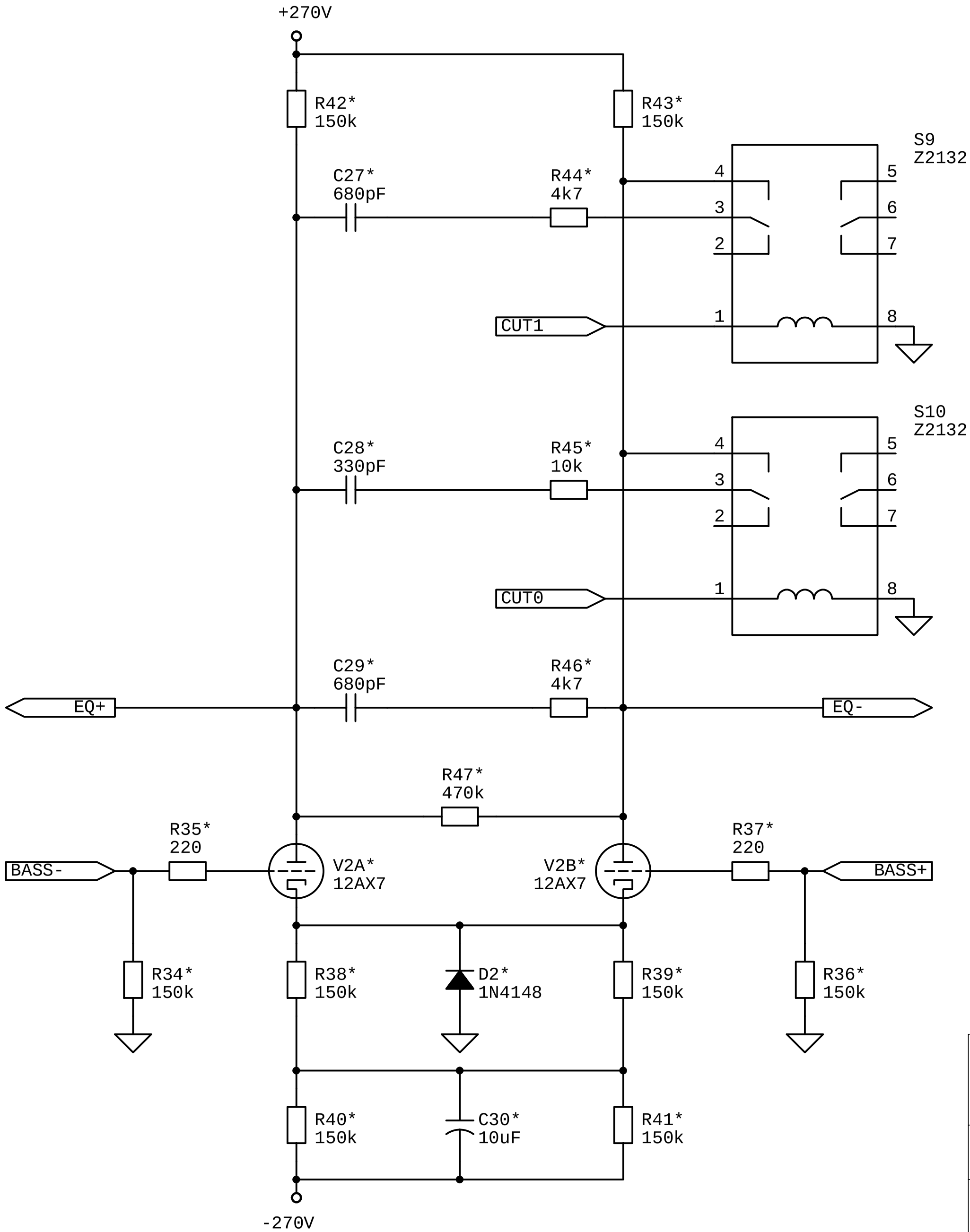
TITLE: RefPhono

Document Number:

REV:

Date: 12/29/2012 4:39:54 PM

Sheet: 4/6



Hagerman Audio Labs
PO Box 61911
Honolulu, HI 96839

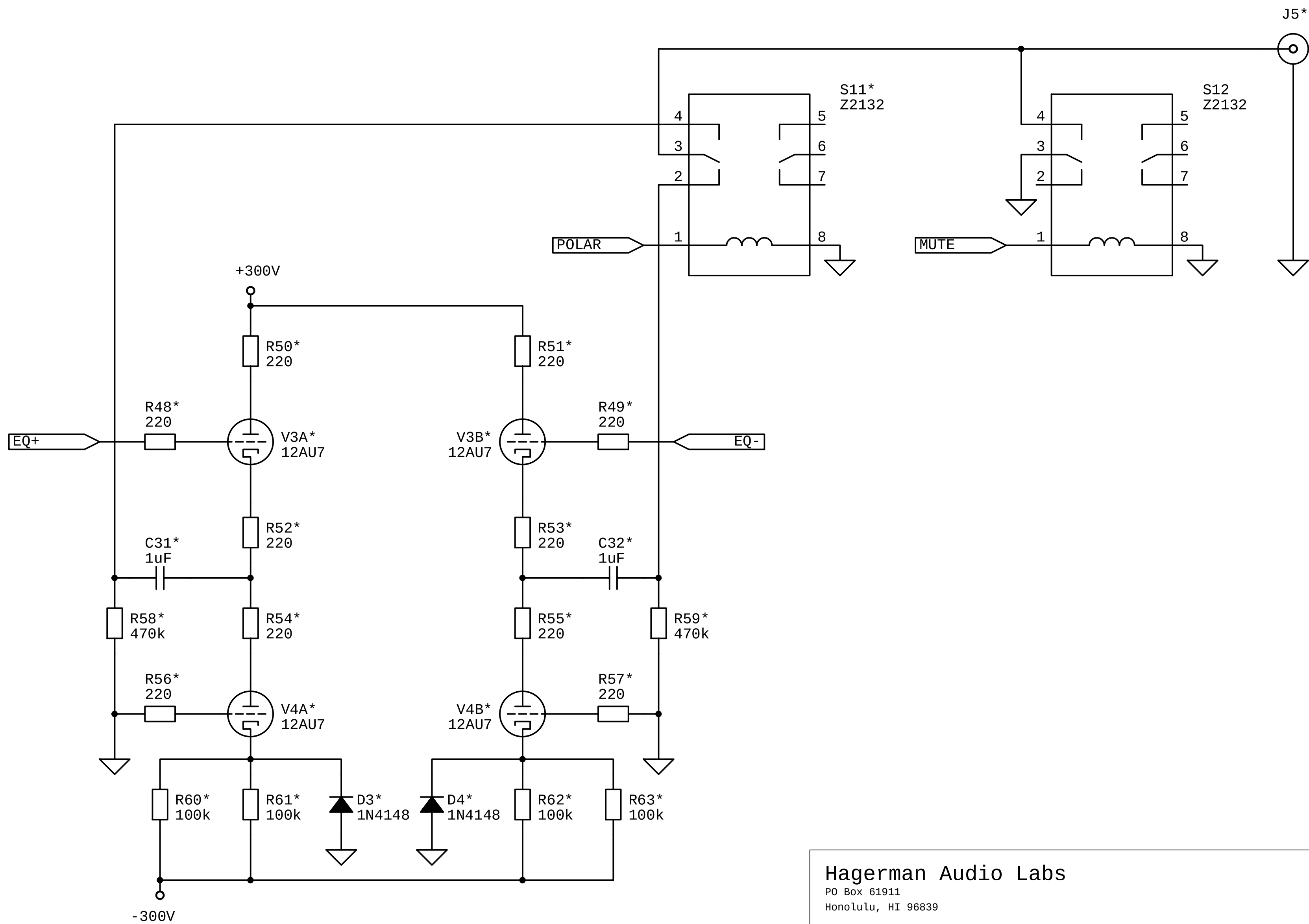
TITLE: RefPhono

Document Number:

REV:

Date: 12/29/2012 4:39:54 PM

Sheet: 5/6



Hagerman Audio Labs
PO Box 61911
Honolulu, HI 96839

TITLE: RefPhono

Document Number:

REV:

Date: 12/29/2012 4:39:54 PM

Sheet: 6/6